# GE Fanuc Automation

***CIMPLICITY® Monitoring and Control Products***

# *CIMPLICITY HMI Plant Edition*

# *GagePort Mitutoyo OPC Server*

## *Operation Manual*

*GFK-2024* *July 2001*

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# Preface

## Contents of this Manual

**Chapter 1. Introducing OPC Servers:** Provides an overview of the GagePort Mitutoyo OPC Server architecture, features and specifications.

**Chapter 2. Using the GagePort Mitutoyo OPC Server Naming Convention:** Describes the GagePort Mitutoyo OPC naming conventions including syntax, data types, timestamps and server quality.

**Chapter 3. Using the GagePort Mitutoyo OPC Server User Interface:** Describes the OPC Server window columns and menu selections.

**Chapter 4. Using the GagePort MITUTOYO OPC Server Troubleshooting Tools.** Describes the available troubleshooting tools and how to use them.

**Chapter 5. Configuring the GagePort Mitutoyo OPC Server DCOM.** Describes how to configure DCOM security for the GagePort Mitutoyo OPC Server.

## Related Publications

For more information, refer to these publications:

***CIMPLICITY HMI Plant Edition User's Manual*** (GFK-1180)

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# Introducing OPC Servers

## About OPC Servers

An OPC Server provides a standards-based interface to the some form of run-time data. The data may come from a specific physical device (like a PLC) or from an HMI or Distributed Control System. The OPC Server conforms to the OLE for Process Control (OPC) 2.0 Data Access standards.

OPC is a technology standard initially developed by a group of automation industry companies and now managed by the not-for-profit organization called the OPC Foundation. The standard was developed to provide a common de-coupling mechanism for automation system software components.

OPC provides for simpler integration of automation software components from multiple vendors.

Fundamentally, the OPC standard defines two software roles: OPC clients and OPC servers. In general, clients are consumers of automation information and servers are producers of the same information.

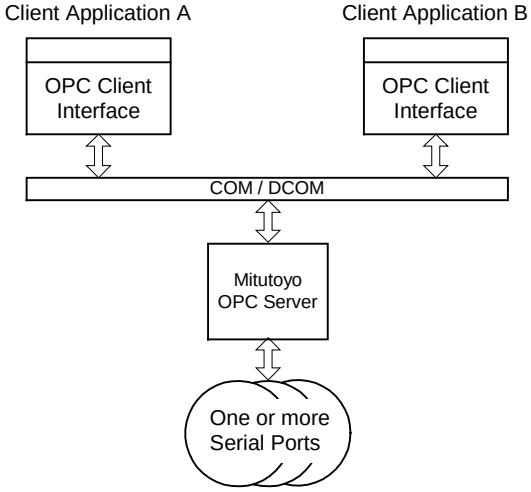
The OPC standard further classifies automation information transactions as follows:

| | |
|---|---|
| Data Access | Manages the exchange of run-time process information (including quality and timestamps) between clients and servers. |
| Alarm and Event Handling | Manages the exchange of event and alarm information. |
| Historical Data Access | Manages the exchange of historical process information. |

The GagePort Mitutoyo OPC Server described here, unless otherwise noted, provides support for the Data Access sub-set of the OPC specification.

OPC leverages Microsoft's COM/DCOM technology. The OPC specification defines the COM interfaces and object behaviors common to automation software applications. Since the OPC standard is COM compliant, DCOM can be leveraged for distributed deployments. For example, an OPC client application can run on a computer node different from that of an OPC server. Neither application (the client or the server) is aware of this distributed architecture.

The following diagram illustrates the client / server architecture defined by the OPC specification.




The diagram shows that multiple OPC compliant client applications can communicate with an OPC server simultaneously. Using DCOM, client and server software programs can be configured to run on the same computer node or be distributed across a network of computers.

OPC servers provide a common view of automation information managed by the system for which the server was written. The GagePort Mitutoyo OPC Server allows an OPC client to read gage values from Mitutoyo gage hubs. Others examples include an OPC server for a PLC providing access to PLC registers or an OPC server for a lab analyzer providing remote monitoring (and control).

OPC clients use this common view of automation information in a variety of ways. This includes providing human machine interfaces, historical data logging, and data mirroring services. Users can write their own custom programs in languages such as Visual Basic or Visual C++. Desktop programs can reference OPC server information. For example, users can write VBA scripts in Microsoft Excel.

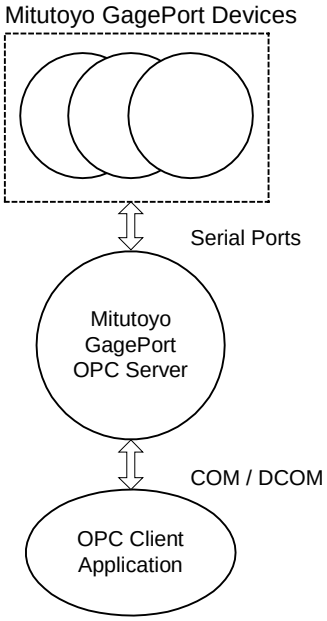
# About the GagePort Mitutoyo OPC Server

The GagePort Mitutoyo OPC Server is as an out-of-process server compliant with the OPC Data Access V2.0 specification. The OPC Server allows OPC clients to read and subscribe to changes of GagePort Mitutoyo, FlexPort, and MIG2 gauge hub devices tied to the local serial ports. It also supports many simple serial devices (such as bar code readers) tied directly to the local serial ports..

The GagePort Mitutoyo OPC server is installed on the node that has the Mitutoyo devices connected to its local serial ports.

It is recommended that the GagePort Mitutoyo OPC server be installed under Windows NT 4.0 in order to leverage all of the advantages of Microsoft COM/DCOM technology. Of particular advantage are the DCOM security settings and the DCOM launch services available only to NT4.0. These features make setup and maintenance of the OPC server easier.

The following diagram illustrates the GagePort Mitutoyo OPC Server interacting with physical devices through the node's local serial ports. The OPC server must always run on the same computer node where the physical devices are attached. However, the OPC client application can be located on the same node or on another node visible through a network. The ability to distribute OPC clients and servers across multiple platforms is one of the key benefits of COM/DCOM technology.



## Reviewing Notes about the GagePort Mitutoyo OPC Server

- An OPC client attempts to connect to the GagePort Mitutoyo OPC Server. If the OPC server process does not exist, COM/DCOM services attempt to activate it. Upon successful activation of the OPC server, the OPC client begins interacting with the OPC server to create server, group, and item objects. If the OPC server object is already active, COM/DCOM returns a reference to the OPC server process. Only one OPC server process can exist on a single computer node at a time.
- When the last OPC client disconnects from the OPC server, the OPC server will automatically terminate.
- In the event that an OPC client does not disconnect gracefully, COM/DCOM garbage collection algorithms will automatically clean the OPC client references (this can take several minutes). Once the references are cleaned up, the OPC server will terminate.
- When the GagePort Mitutoyo OPC Server is activated by COM or DCOM, it runs as a resident process that does not interact with the screen. When it is launched by the user (by double clicking on the EXE or shortcut), it runs in interactive mode, providing a User Interface on the screen.
- The GagePort Mitutoyo OPC Server must be configured prior to being activated by an OPC client. The server must first be run interactively, the serial ports configured, and the configuration saved to disk (with File-Save As) so the server will know what hardware is attached prior to being activated by an OPC client. During the File-Save operation, the server will prompt the user (yes or no) whether to use this configuration when activated by an OPC client. The user must answer Yes at least once, so a valid configuration file is stored in the registry for use when the server is started by an OPC client.

## Reviewing GagePort Mitutoyo OPC Server Features

- OPC Data Access V2.0 compliant, out-of-process server.
- Browsing is supported for OPC clients that can browse hierarchically.
- Extensive diagnostic tools for troubleshooting client / server connections.
- Direct support for GagePort Mitutoyo, FlexPort, and MIG2 gage hubs with any number of hub ports. The values read from these devices are delivered to the OPC client as floating point (VT_R4) values.
- Support for any simple serial device (such as bar code readers) with a variety of message formats. In addition to CR, LF, and CRLF terminators, the OPC server can be configured to handle messages with no terminator where the message length is fixed and no terminator where the length is variable. Finally, a custom sequence of characters can be defined to describe how the message terminates. This ‘Custom’ terminator can also be used to define characters at the end of the message that should be ignored. Any number of characters at the beginning of the message can also be ignored. The resulting value is sent to the OPC client as a VT_BSTR (String).
- Serial port configuration is stored in native XML file format. The Doc/View model provides traditional ‘File-New’, ‘File-Open’, ‘File-Save’, and ‘File-Save As’ functionality, so XML configuration files can be saved anywhere with any name. When the user saves a configuration, they are prompted (YES or NO) whether to use the saved file when the server is started by an OPC client.

# Reviewing GagePort Mitutoyo OPC Server Specifications

Refer the OPC Foundation specification documents for more information about details presented in this section.

## *OPC Specification Compliance*

The GagePort Mitutoyo OPC Server is compliant with the following OPC standards:

- Data Access Custom Interface Standard V2.0 and V1.0a.
- Data Access Automation Interface Standard V2.0.

## *COM Program ID*

Once installed, the GagePort Mitutoyo OPC Server is typically referenced by an OPC client by its **`ProgID`** (program ID). The **`ProgID`** for the GagePort Mitutoyo OPC Server is:

**GEF.GagePortServer**

The OPC Server's unique CLSID (class ID) is:

**{BFBC14F0-1A51-11d5-9AD5-0050042953A6}**

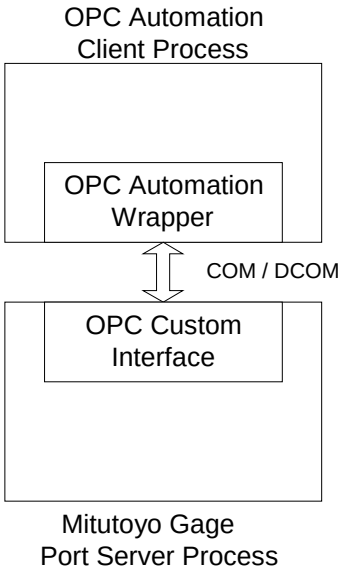
## *Supported Data Access Custom Interfaces*

The CIMPLICITY HMI OPC Server implements the following COM interfaces. Note that standard COM interfaces are not listed.

- `IOPCServer`
- `IOPCItemProperties`
- `IOPCCommon`
- `IOPCASyncIO2`
- `IOPCItemMgt`
- `IOPCSyncIO`
- `EnumOPCItemAttributes`
- `IOPCBrowseServerAddressSpace`
- `IConnectionPointContainer`
- `IOPCGroupStateMgt`
- `IOPCAsyncIO`
- `IConnectionPointContainer`
- `IDataObject`
- `IEnumOPCItemAttributes`

## Supported Automation Interfaces

The GagePort Mitutoyo OPC Server relies on the standard automation wrapper supplied by the OPC Foundation. The following diagram illustrates how the automation wrapper interacts with the automation client (e.g. Visual Basic for Applications script) and the custom interface of the GagePort Mitutoyo OPC Server. Note that the automation wrapper executes in process with the automation client.




**Note:** Selection of the type of interface to use, custom or automation, depends on the goals of the client application developer. Adhoc client applications written in Microsoft Visual Basic (for example) typically use the automation interface. Automation interfaces are easy to use in the VB (and VBA) development environments. However, the automation interface is slower at execution time. Applications written in Microsoft Visual C++ (for example) use the custom interface. This is the most efficient interface, but it is more complex to use.

## Blobs

The GagePort Mitutoyo OPC Server does not support the use of blobs. Refer to the Data Access specification for more information on blobs.

## Reviewing GagePort Mitutoyo OPC Server Troubleshooting Tools

GagePort Mitutoyo OPC Server provides several diagnostic tools for troubleshooting problems common to a heterogeneous software application environment. The tools are designed to help a user diagnose specific aspects of a conversation between an OPC client and the physical devices.

**OPC Connection Trace Logging**—OPC-related connection information is captured using the Trace Logging diagnostic tool. This tool is used to log information about an OPC conversation (between a client and a server) to a text file. *See the section "OPC Connection Trace Logging" in the "Using the GagePort MITUTOYO OPC Server Troubleshooting Tools" chapter for more information.*

**Run-time Statistics**—The OPC Server maintains run-time performance statistics for OPC client-server interactions. These statistics can be used to diagnose computer node performance problems and to tune an OPC client's use of the GagePort Mitutoyo OPC Server resources. *See the section "GagePort Mitutoyo OPC Server Runtime Statistics" in the "Using the GagePort MITUTOYO OPC Server Troubleshooting Tools" chapter for more information.*

# Using the GagePort Mitutoyo OPC Server Naming Convention

## About the GagePort Mitutoyo OPC Item Naming Convention

OPC Client applications reference GagePort gage values using item IDs. Items IDs uniquely reference a gage point value. Item IDs are constructed by using a client browse session or by explicitly typing the Item ID string. This chapter defines the syntax of Item IDs supported by the GagePort Mitutoyo OPC Server.

This OPC Server supports one unique syntax form. The form is always three levels deep and separated by periods (.).

**Note:** The GagePort Mitutoyo OPC Server allows only one gage hub or simple device per local serial port. Multi-drop serial configurations are not supported. This limitation is expressed in the supported Item ID syntax.

# GagePort Mitutoyo Item ID Syntax

The Item ID syntax is as follows. Each field is described below.

**PORTID.DEVICETYPE.PORTNUM**

| Field | Description |
|---|---|
| PORTID | The ID of the local serial port. e.g. COM1 or COM2. |
| DEVICETYPE | The type of device tied to the serial port. This can be one of three values: |

| Value | For a: |
|---|---|
| GPFP | GagePort or FlexPort gage hub. |
| MIG2 | Mitutoyo MIG2 gage hub. |
| SIMPLE | Simple serial device. |

| | |
|---|---|
| PORTNUM | The hub port where the gage is tied in. For GPFP and MIG2 device types, this should be a value between '01' and 'xx' where xx is the number of ports configured for the hub.<br>For SIMPLE devices, this value *must* be VALUE. |

# GagePort Mitutoyo OPC Server Pre-Defined Item ID's

The GagePort Mitutoyo OPC Server has several pre-defined Item ID's used for referencing server performance statistics. The Item ID for each statistic is listed below. An OPC client can reference a statistic to monitor the performance of the OPC Server. Refer to the section "Runtime Statistics" for more information on working with the statistics.

**Note:** Statistic Item IDs follow the same naming convention as a device point. The statistics are assigned to a "fictitious" serial port called STATISTICS.

### *STATISTICS.CLIENTS.VALUE*

Displays the number of OPC clients currently connected to the CIMPLICITY HMI OPC Server.

### *STATISTICS.GROUPS.VALUE*

Displays the number of OPC groups currently configured in the OPC Server.

### *STATISTICS.ITEMS.VALUE*

Displays the number of OPC item references currently configured in the OPC Server. Note that an item may appear in more than one group (or be referenced by more than one OPC client). Each reference is counted in the statistic.

### *STATISTICS.READS.VALUE*

Displays the number of synchronous and asynchronous read transactions performed by the OPC Server in the last sample period. A read transaction is composed of one or more items.

### *STATISTICS.WRITES.VALUE*

Displays the number of synchronous and asynchronous write transactions performed by the OPC Server in the last sample period. A write transaction is composed of one or more items.

### *STATISTICS.EVENTS.VALUE*

Displays the number of client subscription updates (i.e. unsolicited updates to an OPC client) performed by the OPC Server in the last sample period. A single subscription update is composed of one or more items.

### *STATISTICS.PERIOD.VALUE*

The currently configured sample period for calculating reads/period, writes/period, and subscriptions/period statistics.

# GagePort Mitutoyo OPC Server Data Types

The GagePort Mitutoyo OPC Server represents device point values in a canonical (or baseline) format. This format, or data type, is compatible with Microsoft COM/DCOM technology and is called a VARIANT data type.

As any Visual Basic programmer knows, a VARIANT can hold several types of data, usually according to what is assigned to it or how it is used. The VARIANT data type is expressed by a constant that begins with **VT**_.

**Example**

VT_I2 means the variant holds a two-byte signed integer.

VT_BOOL means it holds a boolean value, etc.

The GagePort Mitutoyo OPC Server always returns the following variant types:

| For Devices | Variant Type always returned by GagePort Mitutoyo OPC Server |
|---|---|
| GPFP | VT_R4.<br>This is a four-byte IEEE floating point value, sometimes called a REAL value. |
| MIG2 | VT_R4.<br>This is a four-byte IEEE floating point value, sometimes called a REAL value. |
| SIMPLE device types | VT_BSTR variant type.<br>This is a String value. |

## Data Type Coercion

To ensure the highest throughput of point values through the GagePort Mitutoyo OPC Server to an OPC Client, the client should always request the canonical data type of an attribute.

**Example**

The following table shows data types that should be requested based on the value source with example variant types.

| Client Requests Values from a: | Should request the values as: | (Variant Type) |
|---|---|---|
| GPFP gage hub | Four-byte REAL | (VT_R4) |
| MIG2 gage hub | Four-byte REAL | (VT_R4) |
| SIMPLE serial device | Strings | (VT_BSTR) |

By requesting a point in canonical form, the OPC Server does not have to coerce (or convert) between the data type stored internally and the data type requested by the OPC client.

The OPC Server provides coercion support for all non-array OPC items. The OPC Server utilizes standard Microsoft coercion support routines. A drawback to relying on coercion is the penalty of extra processing overhead required for each transaction. However, relying on coercion in the OPC Server may simplify the OPC client or provide the user with the ability to select the data type most applicable.

# GagePort Mitutoyo OPC Server Timestamps

### OPC Item Timestamp Applied

Either the time the value last changed or the value was refreshed is associated with each OPC item value. This is known as the OPC item timestamp.

The GagePort Mitutoyo OPC Server synchronizes OPC item timestamps with the current computer node time where the physical devices are attached.

### OPC Item Timestamps Universal Time Format

The OPC Server returns all timestamps to an OPC client in universal coordinated time (UTC). An OPC client must convert the timestamp to local time as required.

# GagePort Mitutoyo OPC Server Item Quality

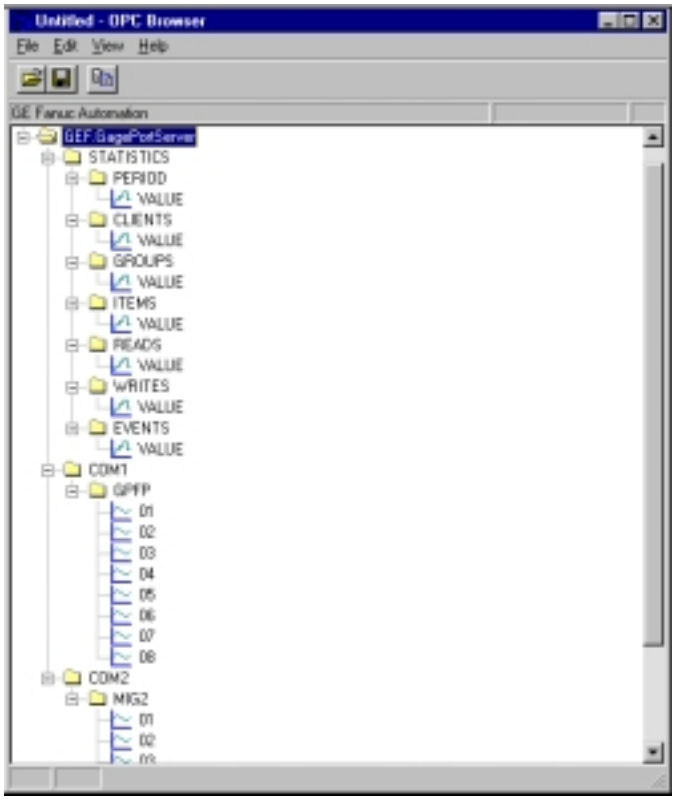
Associated with each OPC item value is an indicator of the quality of that value. This is known as the OPC item quality. The quality of an item is based on whether or not the physical device has provided a value for the Item ID or not.

The GagePort Mitutoyo OPC Server supports a subset of quality flags specified in the OPC Foundation Data Access standard. The supported quality statuses and sub-statuses are listed below.

| OPC Status | OPC Sub-Status | Description |
|---|---|---|
| Good | N/A | A value has been sent by the physical device for the OPC item. |
| Bad | N/A | A value has not yet been received for the OPC item. The value is unknown. |

# OPC Browse Interface Support

The GagePort Mitutoyo OPC Server supports hierarchical browsing of the items in the server's namespace . An example browse session follows. Note that the appearance and behavior of a browse session is dependent upon how the OPC client is implemented. The OPC server only provides the namespace information. The OPC client is responsible for organizing and presenting the namespace.



# Using the GagePort Mitutoyo OPC Server User Interface

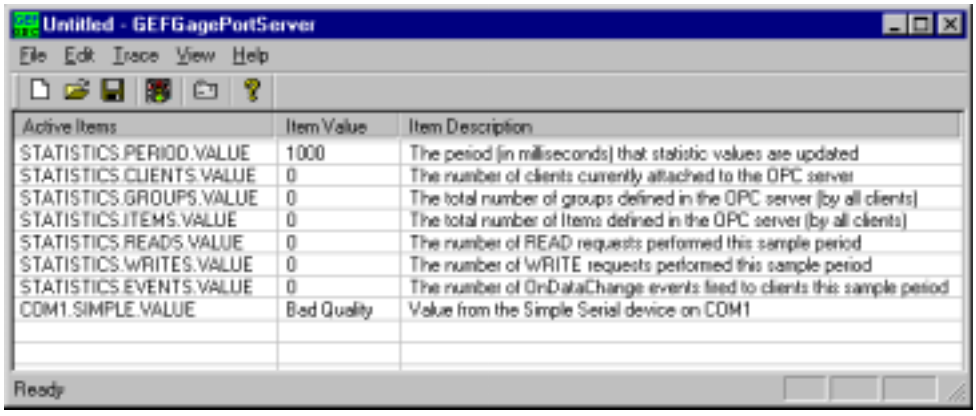
## OPC Window Menu Options

The primary role of the GagePort Mitutoyo OPC Server is to interact with OPC clients programmatically. Thus, no human user interface is required to satisfy the primary function of the OPC Server. For this reason, when the server is launched by an OPC client, it runs invisibly as a resident process.

However, the OPC Server does have a simple user interface (when run interactively) that is used for setting up the OPC Server for an installation and for accessing some of the troubleshooting tools provided by the OPC Server.

The user interface provides the following features.

- Configuration of the devices tied to the serial ports and the saving and opening of the XML files that hold these settings.
- Configuration of the 'Startup File'. This is the XML configuration file used when the server is started by an OPC client.
- Trace logging diagnostic tool configuration.



The OPC Server's client window of the user interface consists of a traditional Windows List View with three columns.

| | |
|---|---|
| Column 1 | Shows all of the OPC Items the server has in its namespace according to the current serial port configuration. Note that the first seven items are the internal OPC server statistics. These are always present and available to any OPC client that chooses to reference them. |
| Column 2 | Shows the current (more accurately, the last known) value of the item. If no value has been received from the hardware, the value shows "Bad Quality". |
| Column 3 | Provides a description of the item. |

Above the List View, the user interface provides a toolbar for the more popular menu options. Finally, there are the menu options.

- File menu
- Edit menu.
- Trace menu.

Selections for each menu option are described below.

## File Menu–in OPC Server Window

The OPC Server window File menu has the following selections:

### New

This option 'Clears' the current serial port configuration and closes the current configuration file if one is loaded. The title bar will reflect an 'Untitled' configuration. Note that a 'default' configuration is loaded on File – New; this is not an empty configuration. The default configuration defines a 'Simple' serial device on COM1. This explains the last item in the screen shot above.

### Open…

This option provides a traditional File-Open dialog box. Note that the GagePort Mitutoyo OPC Server uses XML files as its native configuration file type. With this option, you can open a serial port configuration file, which was previously defined and saved.

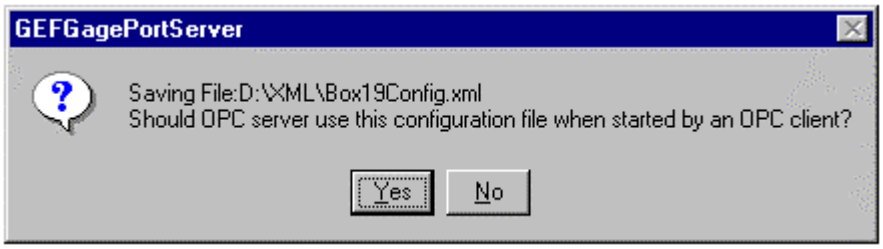
### Save

This option saves the current serial port configuration file to disk. If no configuration file is currently loaded, this option acts the same as the Save-As option.

### Save As…

This option provides a traditional File-Save As dialog box. Navigate to the folder where you wish to store the configuration file, then enter a name for the file. There is no need to enter the file's extension. An **`.xml`** extension will be appended to the name you enter.

Both the Save and Save As options prompt to ask if the configuration being saved should be the configuration loaded when the OPC server is launched by an OPC client…




It is very important that ‘Yes’ is selected at least once before the server is launched by an OPC client. Selecting ‘Yes’ causes the OPC server to store the path to this file in the registry. The server then uses this configuration file when it is launched by an OPC client. If no ‘Startup File’ has been stored in the registry, then the default configuration will be used. This is most likely not the desired result.

### MRU

The ‘Most Recently Used’ files appear next on the ‘File’ menu. This is a short list of configuration files that have most recently been opened.

### Exit

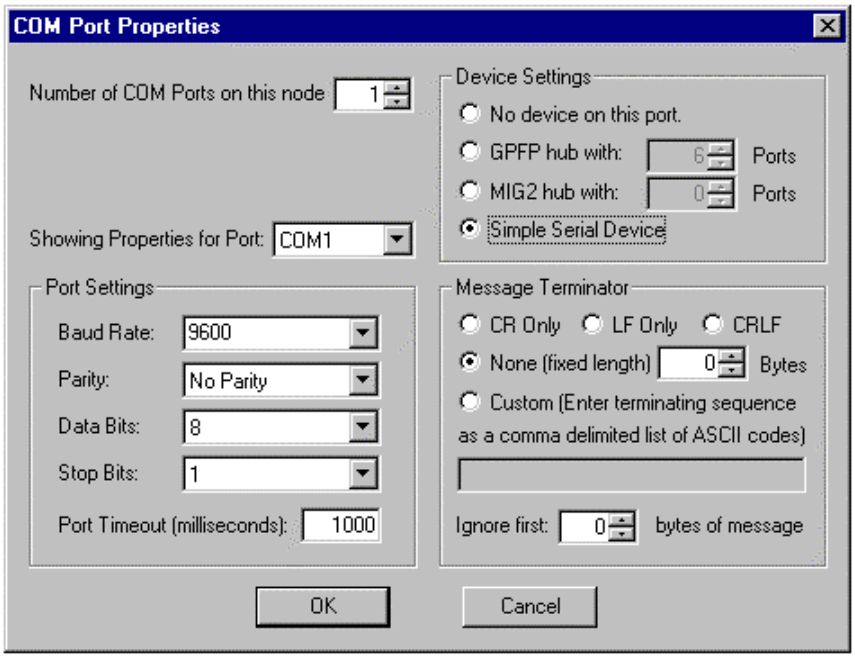
Terminates the GagePort Mitutoyo OPC Server. If configuration has been modified, but not saved, the user is notified and given the option to save the configuration.

## Edit Menu–in OPC Server Window

The OPC Server window Edit menu has the following selections:

### Port Properties

Select this option to configure the devices tied to the serial ports of the node where the GagePort Mitutoyo OPC Server is running. This option opens the COM Port Properties dialog box.



Number of COM Ports… Select the number of serial ports that will be configured. This directly affects the number of items in the 'Showing Properties for Port' combo box. If this value is lowered, a warning is displayed that configuration will be lost for the ports being removed. This value can not be less than one. At least one serial port must be configured.

Showing Properties… Select the serial port to be configured.

Port Settings, Device Settings and Message Terminator controls will update to reflect the configuration of the selected serial port. This is a navigation tool for the dialog box, not an actual stored property.

Port Settings These are the standard serial port configuration options:

- Baud Rate — The Baud Rate for communication with the device.
- Parity — The Parity for communication with the device.
- Data Bits — The Data Bits for communication with the device.
- Stop Bits — The Stop Bits for communication with the device.

Device Settings The type of device tied to the serial port:

- No Device — Use this option if there is no device tied to this serial port. For example, if four ports are being configured (COM 1 through COM 4), but there is no device on COM 3, use this option to indicate this.
- GPFP Hub — Use this option to indicate there is a GagePort or a FlexPort hub tied to this serial port. Use the spinner control to select the number of ports on the hub.
- MIG2 Hub — Use this option to indicate there is a Mitutoyo MIG2 hub tied to this serial port. Use the spinner control to select the number of ports on the hub.
- Simple Serial Device — Use this option to indicate there is a Simple serial device tied to this serial port (such as a bar code reader). The OPC server assumes this device will send ASCII strings to the serial port in an unsolicited manner. The value is delivered to the OPC client as a string (VT_BSTR) type.

Message Terminator Define the structure of the data being received by the OPC server.

- CR Only — This option indicates the message sent by the device ends with a Carriage Return character (ASCII 13).
- LF Only — This option indicates the message sent by the device ends with a Line Feed character (ASCII 10).
- CRLF — This option indicates the message sent by the device ends with a Carriage Return character (ASCII 13) followed by a Line Feed character (ASCII 10).

None (fixed Length) This option indicates that the message has no terminating character(s)… and therefore, must be fixed length. Use the spinner to indicate the number of characters that make up the message.

**Note:** There is a special case use of this option for simple devices that send variable length, not terminated messages. If the number of characters is set to 0, this special case will take effect. In this case, the OPC server will make use of the serial port Timeout value by using the first timeout, after a series of characters, to indicate the end of the message. This is very useful for bar code readers that do not terminate the messages they send, but may be used to read codes of varying lengths!

Custom This option indicates that a custom message terminator will be defined. Enter a comma-delimited list of ASCII values that define how the message terminates. For example, entering 13, 10 would be the same as using the CRLF terminator. NOTE: This type of terminator can be used to strip extra characters from the message. Since the custom terminator is stripped from the message before it is sent to the OPC client, you can specify trailing characters in the message that you want stripped off.

Ignore First xxx This option allows any number of prefixed characters to be stripped from the message before it is sent to the OPC client.

**OK** Save the serial port settings to the document, and close the COM Port Properties dialog box. NOTE:

**Important:** This does *not* save the document to disk! Be sure to use the File-Save or File-Save As menu options to permanently save any changes to an `.xml` configuration file.

**Cancel** Close to the COM Port Properties Dialog without saving the changes.

### ✓ Server is Running

Server is Running is a checked (toggle) type menu option. When the GagePort Mitutoyo OPC Server is launched by an OPC client, it runs hidden from view, and the serial port monitors are automatically started. When the OPC server is run interactively, the serial port monitors are not automatically started. By selecting this menu option, a check mark appears next to it, and the serial port monitors are started. As gage devices send data to the serial ports, the Value column in the List View will be updated to reflect these new values. Selecting this menu option a second time will stop the serial port monitors.

**Note:** Configuration changes made while the serial port monitors are running will not be honored until the server is stopped and then started again.

## Trace Menu–in OPC Server Window

The OPC Server window Trace menu has the following selections:

**Off**

Select this option to disable OPC connection trace logging. The trace log file is closed.

**Connect**

Select this option to enable OPC connection trace logging and to set the level of tracing to capture server activation events and client connect / disconnect events.

**Group**

Select this option to enable OPC connection trace logging and to set the level of tracing to capture OPC group creation, deletion, and modification events.

**Item**

Select this option to enable OPC connection trace logging and to set the level of tracing to capture OPC item transaction events (read, write, subscription updates).

**All**

Select this option to enable OPC connection trace logging and to set the level of tracing to capture all *Connect*, *Group*, and *Item* transaction events.

**Set Trace File…**

Select this option to specify the filename used for logging OPC client / server conversation information. While trace logging is on, all client / server conversation information is appended to this file. Trace logging is enabled by selecting one of the trace levels from the Trace menu option (Connect, Group, Item, All).

## View Menu–in OPC Server Window

The OPC Server window Trace menu has the following selection:

**Toolbar / Status Bar**

These menu items toggle the visibility of the toolbar and status bar, allowing a couple more rows of the list view to be seen.

## Help Menu–in OPC Server Window

The OPC Server window Help menu has the following selection:

**About GEFGagePortServer…**

About GEFGagePortServer… displays the proverbial About dialog box.

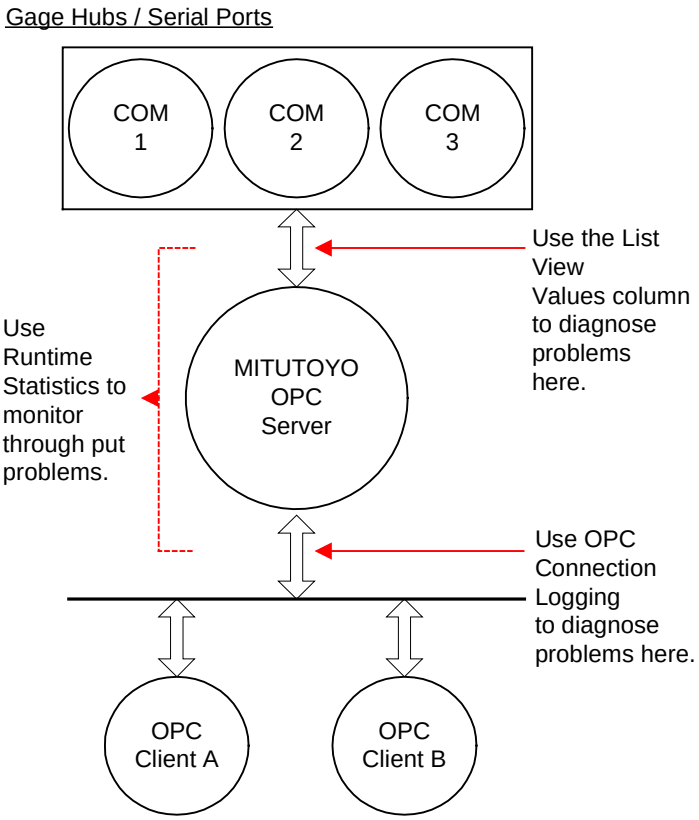
# Using the GagePort Mitutoyo OPC Server Troubleshooting Tools

## About the GagePort Mitutoyo OPC Server Troubleshooting Tools

The GagePort Mitutoyo OPC Server provides troubleshooting tools to help a user diagnose specific aspects of a conversation between an OPC client and a gage tied to the serial port. There are three tools provided with the OPC server. Uses of the tool outputs are discussed in this section.

| | |
|---|---|
| The Value column of the List View | When things are not right, this is the first place to check. By running the server interactively, then 'Starting' it, you can test communication with the gage hubs without having to connect with an OPC client. This way you can verify that the OPC server is communicating successfully with the gages. |
| OPC Connection Trace Logging | OPC-related connection information is captured using the Trace Logging diagnostic tool. This tool is used to log information about an OPC conversation (between a client and a server) to a text file. *See the next section for more details.* |
| Run-time Statistics | The OPC Server maintains OPC conversation run-time performance statistics. These statistics can be used to diagnose computer node performance problems and to tune OPC client reporting requirements. *See page 4 - 5 for more information.* |

The following diagram illustrates the scope of diagnostic information generated by each tool. The following sections describe the output from each tool and how to use it.


Gage Hubs / Serial Ports
COM 1
COM 2
COM 3
Use the List View Values column to diagnose problems here.
Use Runtime Statistics to monitor through put problems.
MITUTOYO OPC Server
Use OPC Connection Logging to diagnose problems here.
OPC Client A
OPC Client B

# OPC Connection Trace Logging

Trace logging monitors the state of a connection between an OPC client(s) and the GagePort Mitutoyo OPC Server. The details tracked are determined by the chosen trace level as follows.

| Trace Level | Description |
|---|---|
| Connect | Log server activation events and client connect / disconnect events. |
| Group | Log OPC group creation, deletion, and modification events. |
| Item | Log OPC item transaction events (read, write, subscription updates). |
| All | Log all events. |

The OPC server must be configured to run interactively in order to access trace logging menu options.

**Note:** Messages written to the trace log assume that the user is familiar with the OPC Foundation Data Access specification.

## Interpreting the Trace Log

The trace log is composed of a series of messages. Each message logs a single OPC client-server event. A message is prefaced with a local machine date and time stamps and the source of the trace message.

**Note:** The date/time and source are not shown in the following sample trace log for the purposes of clarity.

The sample trace log illustrates the sequence of messages logged with the trace level set to *All*. The OPC client initiated the following sequence of events (note that the OPC client used to generate the log is Data Access 1.0A compliant).

1. The OPC client connected to the GagePort Mitutoyo OPC Server.
2. The client created an OPC group and called it Group1. The client created two advise sinks for Group1 for:
   - Receiving subscription notification callbacks (i.e. unsolicited updates from server for all items in Group1).
   - Receiving asynchronous write complete callbacks (i.e. notification from the OPC Server when an asynchronous write operation completed).
3. The client creates a second OPC group called Group2 with the similar advise sinks as Group1.
4. The client added an OPC item to Group1 called `COM1.SIMPLE.VALUE`.
5. Immediately the OPC Server began reporting to the client data change notifications (via a callback into the client).
6. The client proceeded to add two more points: COM2.GPFP.01 and COM2.GPFP.02.
7. Note that immediately after each new item was added, the number of items reported in the callback to the client increased. This is because the values are changing in the gages and being reported to the client at the requested OPC group update rate.

8. The client then removed the OPC group Group2. Prior to doing this, it disconnects the advise sinks previously setup.
9. The client then deletes the OPC group Group1. First it removes the item references from the group and then it disconnects the advise sinks.
10. Finally, the client disconnects from the OPC Server.

```
OPC Client connected
Added OPC Group 'Group1'
Group 'Group1': client connected OPCSTMFORMATDATATIME V1.0 advise sink
Group 'Group1': client connected OPCSTMFORMATWRITECOMPLETE V1.0 advise sink
Added OPC Group 'Group2'
Group 'Group2': client connected OPCSTMFORMATDATATIME V1.0 advise sink
Group 'Group2': client connected OPCSTMFORMATWRITECOMPLETE V1.0 advise sink
Group 'Group1': added item 'COM1.SIMPLE.VALUE' (handle=18155968)
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 1 item(s)
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 1 item(s)
Group 'Group1': added item 'COM2.GPFP.01' (handle=18157088)
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 2 item(s)
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 2 item(s)
Group 'Group1': added item 'COM2.GPFP.02' (handle=18158672)
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 3 item(s)
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 3 item(s)
Group 'Group2': client disconnected V1.0 OPCSTMFORMATDATATIME advise sink
Group 'Group2': client disconnected V1.0 OPCSTMFORMATWRITECOMPLETE advise sink
Removed OPC Group 'Group2'
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 3 item(s)
Group 'Group1': Invoked V1.0 data change callback (with timestamps) for 3 item(s)
Group 'Group1': removed item 'COM1.SIMPLE.VALUE' (handle=18155968)
Group 'Group1': removed item 'COM2.GPFP.01' (handle=18157088)
Group 'Group1': removed item 'COM2.GPFP.02' (handle=18158672)
Group 'Group1': client disconnected V1.0 OPCSTMFORMATDATATIME advise sink
Group 'Group1': client disconnected V1.0 OPCSTMFORMATWRITECOMPLETE advise sink
Removed OPC Group 'Group1'
OPC Client disconnected
```

## Using the Trace Log

Following is a sample list of problems that can be diagnosed with the trace log. The list is not exhaustive. It is intended as a guide only.

- Client connection problems. Use the log to verify if the OPC Server received the client's request to connect. This request may have been blocked by DCOM security.
- DCOM security authorization problems. This can occur if a client can connect to the OPC Server but cannot access server objects. For example, the client can connect to the OPC Server but cannot create an OPC group.
- Validate the OPC items requested by a client and verify the item ID syntax.
- View the sequence of OPC interface requests to verify the correct operation of a client.
- Verify that a client gracefully disconnects.
- Troubleshoot subscription problems (i.e. callbacks into the client by the OPC Server when data changes are reported). In this case, the client is able to perform synchronous and asynchronous read and write requests but cannot receive subscription updates. This may be due to a DCOM security authentication problem on the client machine. The client is unable to authenticate the OPC server.
- See how a client organizes OPC groups and OPC items within groups.

# GagePort Mitutoyo OPC Server Runtime Statistics

The GagePort Mitutoyo OPC Server maintains runtime statistics to diagnose and correct performance problems. Typically, performance problems are caused by how an OPC client application organizes and uses the resources supplied (e.g. group objects and item objects) by an OPC server.

The OPC Server maintains statistics about OPC client-server interactions. These statistics are viewable from an OPC client by reading pre-defined item IDs from GagePort Mitutoyo OPC Server. *See the section "Server Statistic OPC Items" in the GagePort Mitutoyo OPC Server Information chapter for a list of the item IDs.*

Following are the statistics that are maintained about the OPC Client.

### Client Connections

The number of OPC clients currently connected to the GagePort Mitutoyo OPC Server.

### Client Groups

The number of OPC groups (for all clients) currently configured in the OPC Server.

### Client Items

The number of OPC item references (for all groups) currently configured in the OPC Server. The same item may appear in more than one group (or be referenced by more than one OPC client). Each reference is counted in this statistic.

### Read Transactions Per Period

The number of synchronous and asynchronous read transactions performed by the OPC Server in the last sample period. A read transaction is composed of one or more items and may be a cache read or device read.

### Write Transactions Per Period

The number of synchronous and asynchronous write transactions performed by the OPC Server in the last sample period. A write transaction is composed of one or more items.

### Subscription Transactions Per Period

The number of client subscription updates (i.e. unsolicited updates to an OPC client) performed by the OPC Server in the last sample period. A single subscription update is composed of one or more items.

## Using the Runtime Statistics

The runtime statistics can provide an initial indication of client-server interaction problems. Use the statistics to identify the general problem and then use the OPC Connection Trace Logging to identify the specific problem.

### Client Groups and Client Items

Client groups and Client items provide a rudimentary indication of how an OPC client organizes the group and item object resources supplied by the GagePort Mitutoyo OPC Server. Some OPC client applications initially create a large number of OPC groups and disable the subscription updates until needed. While this will not cause CPU loading problems, it could cause the initial connection and setup time with the GagePort Mitutoyo OPC Server to be slow or for a large amount of memory to be used by the OPC Server.

### Reads Transactions Per Period, Write Transactions Per Period

Reads transactions per period and write transactions per period provide information on the OPC Server loading. For example, a high Read Transactions Per Period or Write Transactions Per Period value may coincide with abnormally high CPU loading. The client may be continuously performing a large number of device read or device write requests. (Note that cache reads are very efficient and do not typically cause significant CPU loading problems.)

### Subscriptions

Subscriptions updates (e.g. unsolicited updates of changed values and/or quality information by an OPC server to an OPC client) may cause high CPU loading when the OPC client requested OPC group update rates are small for groups with rapidly changing values. If subscription updates are not occurring when OPC items are known to be changing, then there may be a DCOM security authentication problem on the computer hosting the OPC client application. The security on this node may not be configured to allow the GagePort Mitutoyo OPC Server to post subscription updates (via callbacks).

# Configuring the GagePort Mitutoyo OPC Server DCOM

## About DCOM Security

The GagePort Mitutoyo OPC Server is implemented as a Microsoft COM (Component Object Model) object. DCOM (Distributed COM) provides the framework and the services required to deploy COM objects in a distributed environment. One of these services is security. DCOM security leverages the underlying Windows operating system security services. Those familiar with Windows (NT/98/2000) security issues will find that there are a few security issues unique to the distributed environment.

To better understand the security issues that can affect a connection between an OPC client and the GagePort Mitutoyo OPC Server, this chapter provides an overview of DCOM related security. The topic of DCOM security (and Windows security for that matter) is extensive and can be confusing. There are several books dedicated to these topics alone. What is presented here is a synopsis of the issues that affect OPC client / server interactions.

DCOM security topics can be broken down into four areas (for definition purposes):

- Authentication,
- Authorization,
- Activation and
- Launch identity.

**Note:** Activation security is unique to DCOM.

### *Authentication–DCOM Security*

Authentication security ensures that the interaction between an OPC client and the GagePort Mitutoyo OPC Server is legitimate. Authentication security for DCOM is an extension of the standard Windows operating system security (which itself is layered upon secured RPC (remote procedure call)). Authentication poses the question “Is the OPC client who it says it is?” and “Is the OPC server who it says it is?” The user configures the level of authentication required which specifies how often this question is posed. Each more secure level places extra processing overhead on communications

between the OPC client and the OPC server. A client and server negotiate to the highest level of authentication when the configured authentication levels differ.

For example, authentication can be required only at OPC client connection time to a server (level = connect). Once a client is connected (and is authorized to use the OPC Server), all interactions are performed without further authentication. As another example, authentication can be required at the packet level (level = Packet Privacy), with each packet being fully encrypted. The choice of the authentication level is dependent on the security policies of the user.

In a multi-node computing environment the security system on the computer node running the OPC server must be able to verify that the security ID of the OPC client is valid. In a domain environment, domain accounts must be validated. In peer-to-peer environments, matching local user accounts must be configured.

Authentication of an OPC client must be satisfied before authorization and activation permissions are checked. If a client cannot be authenticated, permission checking for the requested action is not performed.

### *Authorization–DCOM Security*

Once an OPC client transaction has been authenticated, DCOM security must determine if that OPC client is authorized to perform call-level interactions with the OPC server. (COM/DCOM technology allows OPC client applications to make programmatic calls across process and computer node boundaries.) This determination is made by looking at the ACL (access control list) for the OPC server COM object. This ACL (or list of users and/ or user groups) for the OPC server is configured using the DCOMCNFG utility supplied with the Windows operation system. *See the section "Tools for Configuring DCOM Security" in this chapter for more information about DCOMCNFG.*

If the OPC client's user identity is listed on the OPC server's access permissions ACL (as a user or group member), then the OPC client can access GagePort Mitutoyo OPC Server objects.

### *Activation–DCOM Security*

Activation security is unique to DCOM. The DCOM framework provides the ability for an OPC client to access the GagePort Mitutoyo OPC Server object. If the OPC server object is installed on another computer node, then the framework launches (or activates) the OPC server (if it already not running) on behalf of the client. Activation permission checking works the same as authorization permission checking. An authenticated client's user identity is checked against the OPC server's ACL for launch permissions. Activation permissions for the GagePort Mitutoyo OPC Server are setup using DCOMCNFG.

**Note:** Activation services are not supported by Windows NT/98/2000 DCOM. Users must manually launch the GagePort Mitutoyo Server on these operating system platforms.

### *Launch Identity–DCOM Security*

Most often, the GagePort Mitutoyo OPC Server is configured to run as a background process (i.e. non-interactive mode) with the OPC Server starting and stopping as OPC clients connect and disconnect. The OPC server must be given a user identity under which to run (i.e. administrator account, the current interactive user, or a special account setup for the OPC server). The launch identity for the GagePort Mitutoyo OPC Server is specified using the DCOMCNFG utility.

# Tools for Configuring DCOM Security

**Note:** It is assumed that reader can configure user accounts (either on a local machine or in a domain environment) and assign group memberships for the user accounts.

Steps to configure DCOM security include:

**Step 1.** Configure DCOMCNFG.

**Step 2.** Do minimal DCOM configuration for client connections.

## Step 1. Configure DCOMCNFG

The GagePort Mitutoyo OPC Server relies on the DCOMCNFG (commonly referred to as **`dee-com config`**) utility supplied with the Windows operating system. The OPC server does not programmatically initialize DCOM security.

The following tasks provide an overview of frequently used DCOM settings. However, the settings you choose depend on your network configuration needs and required level of security.

**Task 1.** Open the Distributed COM Configuration Properties dialog box

**Task 2.** Double-check default DCOM settings

**Task 3.** Set important DCOMCNFG settings for the GEF GagePort OPC Server

**Task 4.** Set important DCOMCNFG settings for an OPC client.

*Step 1. Configure DCOMCNFG*

### *Task 1. Open the Distributed COM Configuration Properties Dialog Box*

**Task 1. Open the Distributed COM Configuration Properties dialog box:**

*Option 1–from an MS_DOS window*

1. Open an MS_DOS window.
2. Type **`dcomcnfg`** at the prompt.

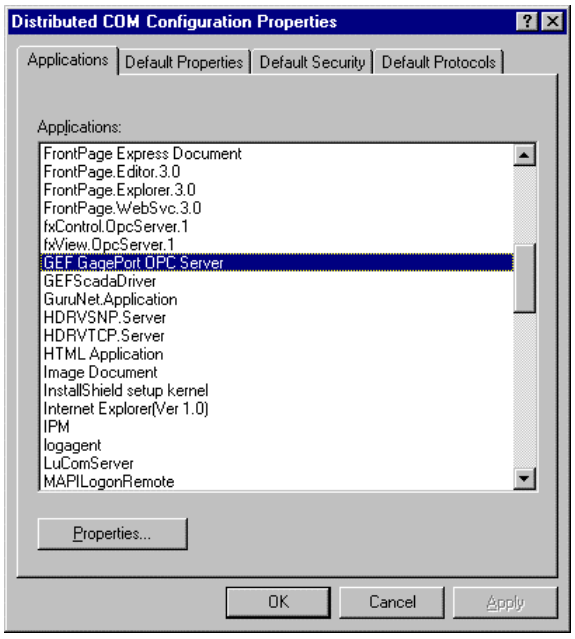
*Option 2–from Windows Start menu*

1. Click **Start** on the Windows task bar.
2. Select Run on the Start menu.

   The Run dialog box opens.
3. Type **`dcomcnfg`** in the Open field.

***Result: The Distributed COM Configuration Properties dialog box opens.***

The utility is composed of multiple dialog boxes, selectable by tabs across the top as shown below. The user interface varies slightly among Windows NT versions. Therefore, the user interface for your version of Windows NT may be slightly different. However, the option descriptions in this section are the same for the service pack releases.



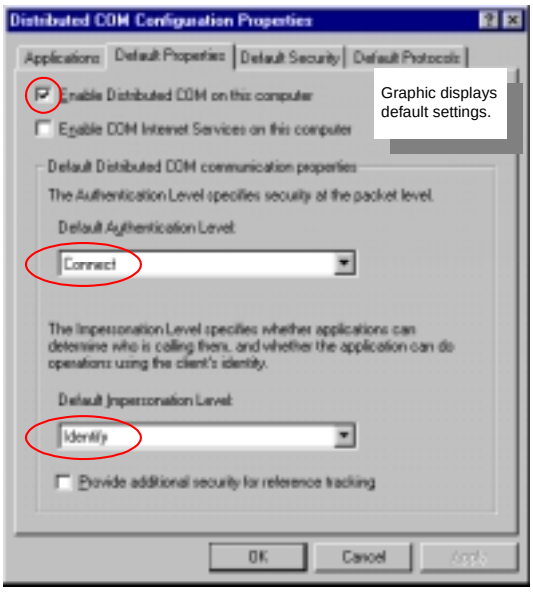

**Note:** COM objects that programmatically initialize DCOM security will cause the DCOMCNFG settings to be ignored.

*Step 1. Configure DCOMCNFG*

## *Task 2. Double-check Default DCOM Settings*

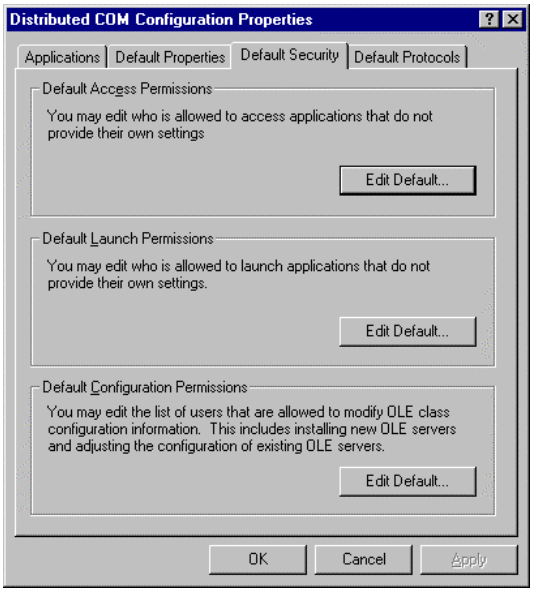
The current default DCOM settings may be appropriate for the GEF GagePort OPC Server addition. The most important settings to double-check using the tabs in the Distributed COM Configuration Properties dialog box are as follows.

| Tab | Select |
|---|---|
| **DCOMCNFG Default Properties** | Enable Distributed COM on this computer.<br><br>Set the Default Authentication Level to satisfy the network security requirements of the installation.<br><br>(Windows NT 4.0 SP4 allows the Authentication Level to be customized for the OPC Server. The DCOMCNFG SP3 utility provides this feature at the default level only.)<br><br>Set the Default Impersonation Level to Identify. |


Distributed COM Configuration Properties
Applications
Default Properties
Default Security
Default Protocols
Enable Distributed COM on this computer
Enable COM Internet Services on this computer
Default Distributed COM communication properties
The Authentication Level specifies security at the packet level.
Default Authentication Level
Connect
The Impersonation Level specifies whether applications can determine who is calling them, and whether the application can do operations using the client's identity.
Default Impersonation Level
Identify
Provide additional security for reference tracking
OK
Cancel
Graphic displays default settings.

### DCOMCNFG Default Security

If customized access permissions and launch permissions were not specified on the Security tab in the GEF GagePort OPC Server Properties dialog box *(See page 5-8)*, DCOM security for the OPC -Server uses the user and/or group settings (ACL) assigned under Default Access Permissions and Default Launch Permissions.


Distributed COM Configuration Properties
Applications
Default Properties
Default Security
Default Protocols
Default Access Permissions
You may edit who is allowed to access applications that do not provide their own settings
Edit Default...
Default Launch Permissions
You may edit who is allowed to launch applications that do not provide their own settings.
Edit Default...
Default Configuration Permissions
You may edit the list of users that are allowed to modify OLE class configuration information. This includes installing new OLE servers and adjusting the configuration of existing OLE servers.
Edit Default...
OK
Cancel
Apply

*Step 1. Configure DCOMCNFG*

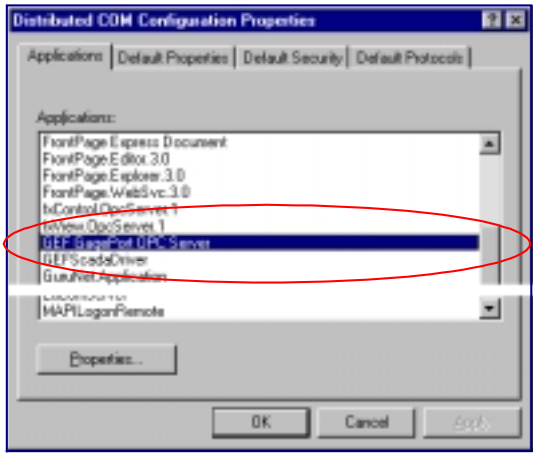
## *Task 3. Set Important DCOMCNFG Settings for the GEF GagePort OPC Server*

This section lists the DCOMCNFG settings that are relevant for configuring the DCOM security for the GagePort Mitutoyo OPC Server.

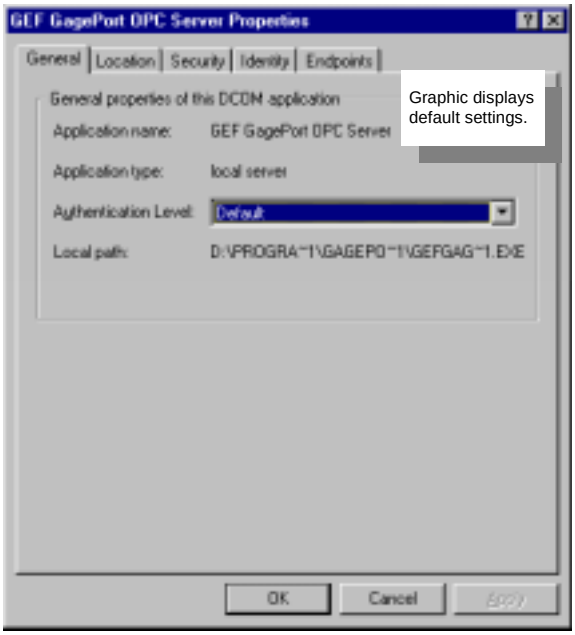
The OPC Server can be configured to use default security settings for the computer node or the settings can be customized to adhere to your network's requirements.

### Task 3. Set important DCOMCNFG settings for the GEF GagePort OPC server.

1. Double-click GEF GagePort OPC Server in the Distributed COM Configuration Properties dialog box on the Applications tab.

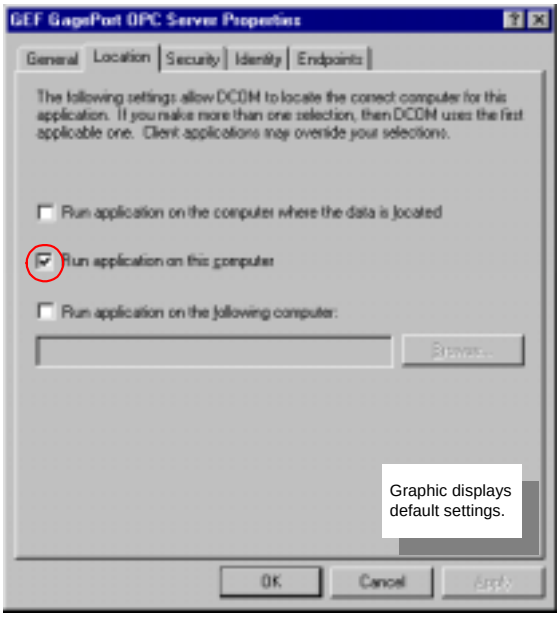



The GEF GagePort OPC Server Properties dialog box opens.

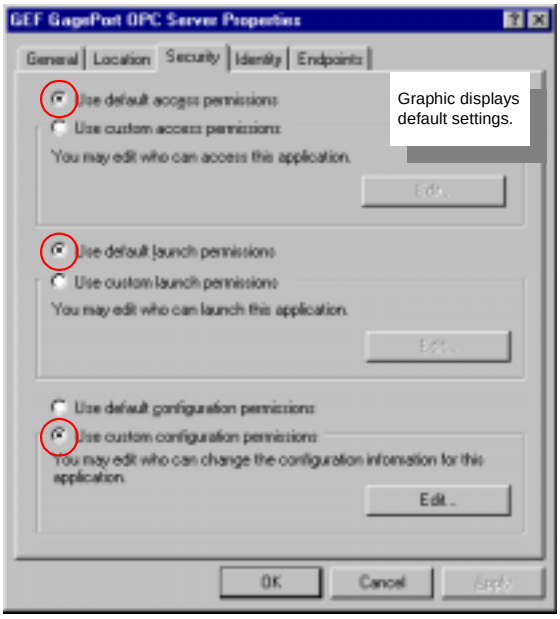


2. Configure the tabs to your network's needs. The following descriptions show frequently used specifications.

| Tab | Most Frequently Used Selections |
|---|---|
| **Location** | The option:<br>Run application on this computer. |


GE Fanuc GagePort OPC Server Properties
General
Location
Security
Identity
Endpoints
The following settings allow DCOM to locate the correct computer for this application. If you make more than one selection, then DCOM uses the first applicable one. Client applications may override your selections.
Run application on the computer where the data is located
Run application on this computer
Run application on the following computer:
Browse...
Graphic displays default settings.
OK
Cancel
Apply

| | |
|---|---|
| **Security** | Use default access permissions (for authorization security) and<br>Use default launch permissions (for activation security) unless the default settings do not satisfy your system security requirements.<br>If customized settings are required, specify the trusted users and/or groups (ACL) for authorization and activation security settings. |



**Identity**

Options provide the following benefits (and limitations).

The interactive User

Benefit: Allows other interactive clients to attach to the server.

Limitation: The server will shut down after a log out and data collection will be stopped. However, CIMPLICITY may still be running.

The launching User

Benefit: Server continues to run after log out; data continues being collected.

Limitation: Other interactive clients cannot attach to the server.

This user

Benefit: Allows other interactive clients to attach to the server and continues to run after log out; data collection continues.

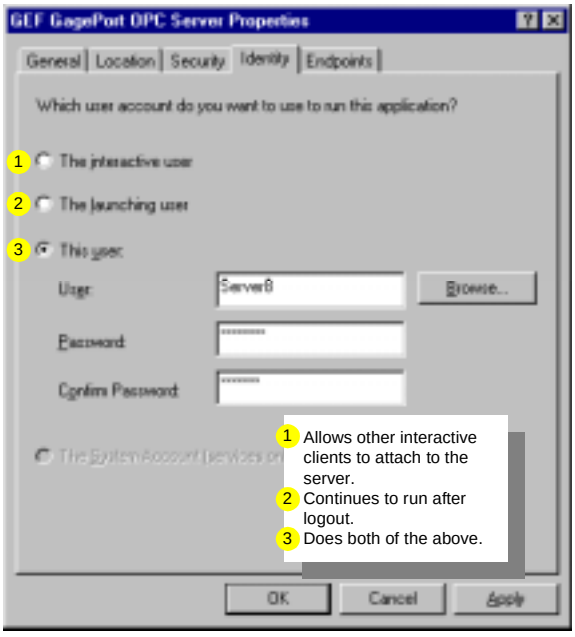
Limitation: Requires more configuration than the other two options.

Recommendation

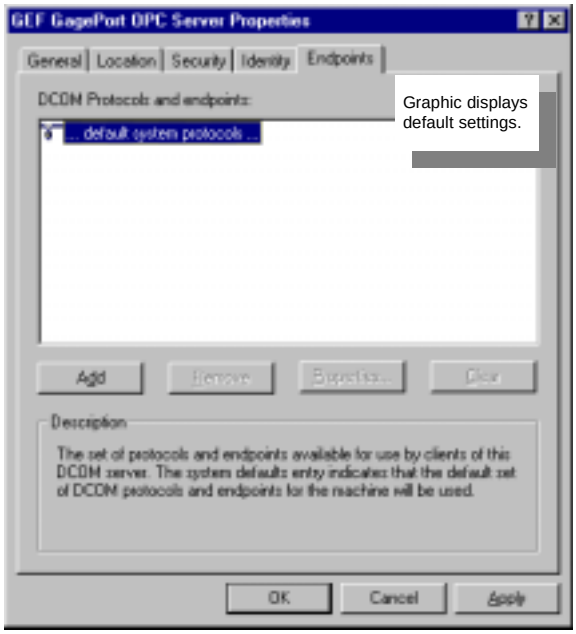
When initially setting up the OPC server or troubleshooting client/server interaction problems, specify The interactive user.

Otherwise, specify This user and supply a valid user account (local machine or domain as required) and the passwords configured for this user account.

**Important:** The OPC server will take on the identity (and privileges and permissions) of the user account when activated by an OPC client. The chosen user account (either interactive or this user) ***must*** be authenticated on a remote OPC client node in order for some OPC interactions to occur (e.g. subscription notifications).



**Endpoints** The default setting is default system protocols.




*Step 1. Configure DCOMCNFG*

## *Task 4. Set Important DCOMCNFG Settings for an OPC Client*

If the OPC client application is a COM object and does not initialize DCOM security programmatically, then the DCOMCNFG utility must be used to specify the Access Permissions and the Authentication Level. This is required for authenticating callbacks into the client by the OPC server. DCOM Security on the OPC client computer node must not only authenticate the user identify of the OPC server but also must determine if the OPC Server is allowed to make calls on client owned objects. Callbacks are invoked by the OPC server to provide subscription updates and completion notifications for asynchronous read and write operations.

If the OPC client application is not a COM object (i.e. the OPC client application is not listed in DCOMCNFG), then the DCOM security settings for Default Access Permissions and Default Authentication Level are applied.

## Step 2. Do Minimal DCOM Configuration for Client Connections

The instructions in this section outline how to setup the GagePort Mitutoyo OPC Server and the OPC client DCOM security settings to get up and running quickly. Effectively, the settings outlined here turn off all security authentication. If authentication is disabled, then by default all permission checking (for authorization and activation security) is disabled. Any OPC client application can use GagePort Mitutoyo OPC Server objects and the OPC server can call back into the OPC client application.

## Guidelines: For DCOM Configuration

This section presents general guidelines for "tightening" DCOM security settings for GagePort Mitutoyo OPC Server / OPC client interactions. This list of guidelines is not exhaustive. It is assumed the reader is familiar with Window security issues and DCOM security in particular. The issue of security in an automation environment is currently being addressed by an OPC Foundation working committee.

**Note:** Whenever possible, try to use **DCOMCNFG** settings that are custom to the GagePort Mitutoyo OPC Server. This has two benefits; one, as the OPC server is setup for initial use, the behavior of other COM objects installed on the same computer node is not affected and two, future changes to other COM object DCOM security settings do not affect the behavior of a correctly operating GagePort Mitutoyo OPC server.

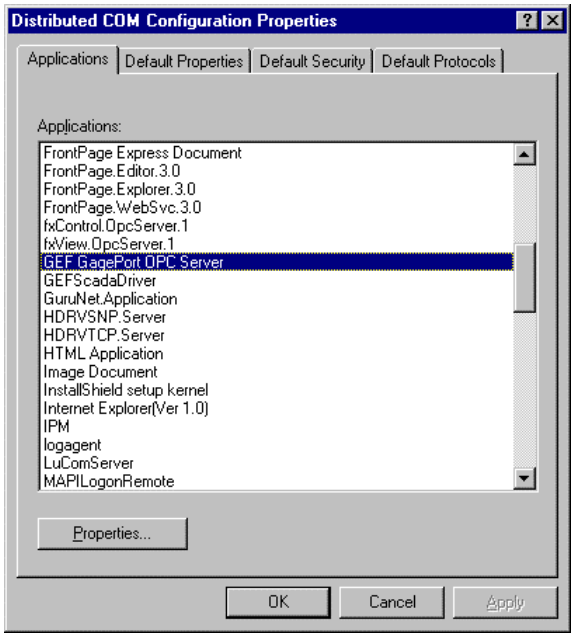
- Enable authentication security by setting the **DCOMCNFG** Default Authentication Level at a level of at least Connect. If you are running DCOMCNFG supplied with SP4, then ensure that the "Authentication Level" custom setting is set to at least the level Connect. Once authentication is enabled, DCOM security will attempt to verify the user identities of both the OPC server and the OPC client. Thus, user accounts must be setup correctly if the OPC Server is on one computer node and the client is on another computer node. See the guideline below on domain authentication setup. In a peer-to-peer network, the user account under which the OPC server is running must also exist on the OPC client machine, and vice versa.
- Enable GagePort Mitutoyo OPC Server activation security by specifying known users and / or groups in the DCOMCNFG "Use custom launch permissions" option for the OPC Server. As a rule, the activation security should always be more restricted than the authorization security. This prevents the situation where an OPC client can activate the GagePort Mitutoyo OPC Server, but cannot use the OPC Server objects.
- To restrict access of OPC clients to a GagePort Mitutoyo OPC Server that is already running (authorization security), modify the access control list (ACL) of the OPC server by editing the "Use custom access permissions" option of **DCOMCNFG**.
- A domain authentication architecture provides the lowest cost solution (from a maintenance perspective) for DCOM security. If you are using a domain, then follow these general setup guidelines:
  1. Create a new domain group. Users part of this group will be allowed to launch the GagePort Mitutoyo OPC Server and access it's objects.
  2. Add the new group to the launch permissions and access permissions ACL for the GagePort Mitutoyo OPC Server. Do this using **DCOMCNFG**.
  3. Make all user accounts that run an OPC client application part of this new group.

# Registry Settings for Off-node Clients

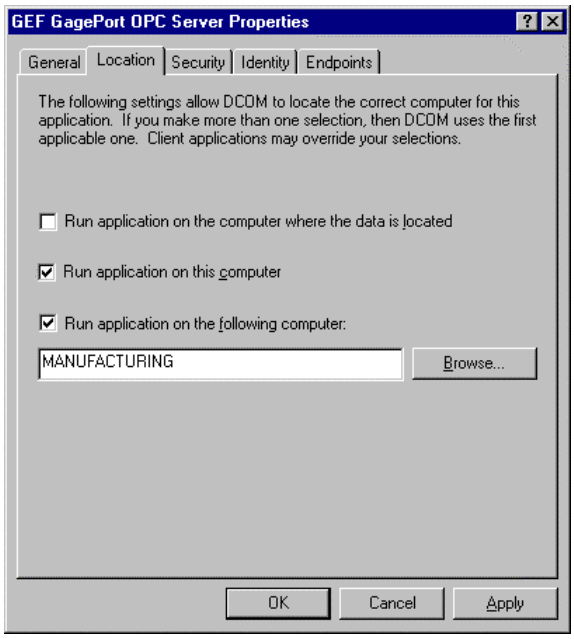
Remote OPC client applications (i.e. client applications that run on a computer node other than the one running the GagePort Mitutoyo OPC Server) do not have to have GagePort Mitutoyo software installed on a remote machine in order to access the GagePort Mitutoyo OPC Server. A remote OPC client registry entry file (CIMOpcServer.reg) ships with the OPC server. The registry entries in this file allow an OPC client application to reference the OPC server on another node.

### To setup GagePort Mitutoyo OPC Server access from a remote node:

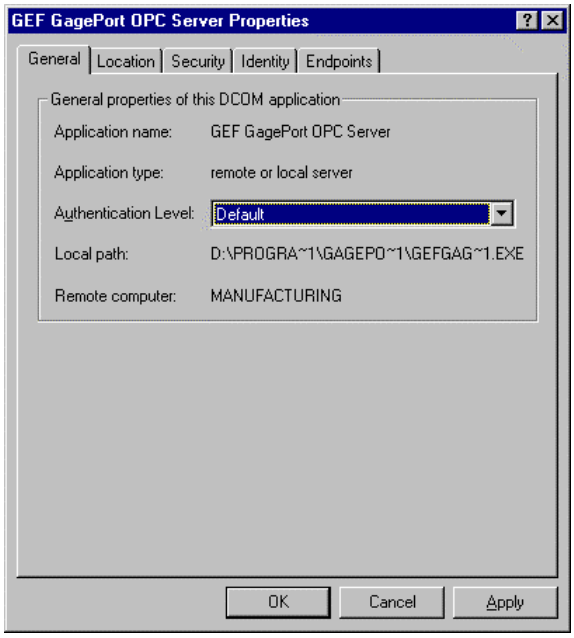
1. Log onto the remote computer node using an account with administrator privileges.
2. Using Window explorer (or a similar file navigation utility), access the file named **`GEFGagePortServer.reg`**.
3. Double-click the file to update the registry.
4. Using the **`DCOMCNFG`** utility, select the Applications tab and double click the application labeled GagePort Mitutoyo OPC Server *(see graphic below)*.



5. Select the Location tab. Type the node name where the GagePort Mitutoyo OPC server is installed. In the example below, the OPC Server is installed on the MANUFACTURING node.


GEF GagePort OPC Server Properties
General
Location
Security
Identity
Endpoints
The following settings allow DCOM to locate the correct computer for this application. If you make more than one selection, then DCOM uses the first applicable one. Client applications may override your selections.
Run application on the computer where the data is located
Run application on this computer
Run application on the following computer:
MANUFACTURING
Browse...
OK
Cancel
Apply

6. Select the General tab. An example of this sheet is shown below. It shows that the GagePort Mitutoyo OPC Server object is registered on this machine, but points to another node (MANUFACTURING) for activation / access of the object.




7. A client application on the remote node should now be able to reference the GagePort Mitutoyo Server (given that DCOM security issues have been addressed). The ProgID of the OPC Server is GagePort Mitutoyo OPC Server and the CLSID is {BFBC14F0-1A51-11d5-9AD5-0050042953A6}.

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